

observed in palæontology, the value of the application of Natural History to Geological science mainly depends.]

C. The *genus*, in whatever degree of extension we use the term, so long as we apply it to an assemblage of species intimately related to each other in common and important features of organization, appears distinctly to exhibit the phænomenon of centralization in both *time* and *space*, though with a difference, since it would seem that each *genus* has a *unique centre* or *area of development* in time, but in geographical space may present *more centres than one*.

- a. An individual is a positive reality.
- b. A species is a relative reality.
- c. A genus is an abstraction—an idea—but an idea impressed on nature, and not arbitrarily dependent on man's conceptions.
- a. An individual is *one*.
- β. A species consists of *many resulting from one*.
- γ. A genus consists of more or fewer of these *manies resulting from one* linked together not *by a relationship of descent* but *by an affinity dependent on a divine idea*.

And, lastly,

a. An individual cannot manifest itself in two places at once; it has no extension in space; its relations are entirely with *time*, but the possible duration of its existence is regulated by the law of its inherent vitality.

b. A species has correspondent and exactly analogous relations with time and space,—the duration of its existence as well as its geographical extension are entirely regulated by physical conditions.

c. A genus has dissimilar or only partially comparable relations with time and space, and occupies areas in both having only partial relations to physical conditions.

The investigation of these distinctions and relations forms the subject of a great chapter in the Philosophy of Natural History. That Philosophy contemplates the laws that regulate the manifestation of life exhibited in organized nature, and their dependence upon and connection with the inorganic world and its phænomena. None teaches more emphatically the difficulties with which man's mind must contend when attempting to comprehend the wisdom embodied in the universe, and none holds out a more cheering prospect of future discovery in fresh and unexpected fields of delightful research.

BOTANICAL SOCIETY OF EDINBURGH.

Thursday, 8th April, 1852.—Dr. Sellar, President, in the Chair.

Dr. Murchison exhibited some curious specimens of Extract of Tea, prepared in the form of lozenges by the Chinese. These lozenges were of various forms, and had impressed upon them mottos in Chinese characters, and the figures of different insects, musical instruments, and other objects. They had been brought from Pekin in the year 1812, and were stated to be used by the Chinese when

travelling; when introduced into the mouth, they were said to dissolve slowly, preventing thirst, and proving very refreshing. Though it was forty years since they had been brought from China, they still retained a very perceptible flavour of tea.

The following papers were read:—

1. "On the Economic Uses of Chicory (*Cichorium Intybus*, L.)," by Mr. James Fulton. The author, after giving a general account of the history of the Chicory plant, and alluding to the antiquity of its cultivation, proceeded to point out the wide range of economic uses to which it might be made applicable, and urged the importance of extending its cultivation. Its extensive use as an ingredient in coffee is well known. As a forage plant, it forms some of the best meadows in the south of France and Lombardy, succeeding in all seasons; while its use as a salad is likewise extensive. Since 1835, large quantities of the root have been imported from the continent; it is now cultivated in several parts of England. It had occurred to Mr. Fulton that the bitter of the chicory root might be employed as a substitute for hops, and he had accordingly used it with success, and found that the root not only communicates a pleasant bitter, but that it is likewise in some measure a substitute for the malt by possessing a large amount of saccharine matter.

2. "Analysis of the *Sabal umbraculifera*, as grown in the Botanic Garden," by Mr. Allan B. Dick. The following is Mr. Dick's analysis:—

	Organic matter.	Inorganic.
Lamina.....	91·90	8·10
Petiole.....	95·00	5·00
Silica.....		37·00
Sulphuric Acid.....		11·15
Lime.....		15·90
Potash.....		8·65
Soda.....		2·50
Chloride of Sodium.....		8·45
Phosphoric Acid.....		1·70
Oxide of Iron.....		1·30
" Manganese.....		1·40
Magnesia.....		4·75
Carbonic Acid.....		0·99
Charcoal.....		5·95
		99·74

3. "On Plants found in the neighbourhood of Ripon, Yorkshire, in March 1852," by Mr. James B. Davies.

4. "Report on the state of Vegetation in the Edinburgh Botanic Garden, from 10th March till 8th April 1852, as compared with the years 1850 and 1851," by Mr. M'Nab.

5. "Notice of Plants found in flower at Bowhill, Selkirkshire, on 23rd March," by Dr. Balfour.

May 13th, 1852.—Dr. Sellar, President, in the Chair.

Dr. Balfour read a letter from Dr. Dickie, mentioning that he had added two mosses to the Flora of Ireland, viz. *Polytrichum hercynicum* and *Hypnum rufescens*.

The following papers were read :—

1. "Notice of Chinese Vegetable Products transmitted for the Museum of Economic Botany," by Mr. Robert Fortune.
2. "On Plants found in Yorkshire, Westmoreland, and Cumberland, in April 1852," by Mr. James B. Davies.

Mr. Davies gave a complete list of the plants observed by him, with their dates of flowering.

Professor Balfour exhibited a young plant of *Victoria Regia*, from one of the hothouses in the Botanic Garden, showing the remarkable difference in the form of the leaves produced in its early stage of growth from those afterwards formed. The plant showed the first-formed linear leaf, followed by the sagittate form, after which, leaves of a more or less rounded-cordate form are produced.

June 10, 1852.—Dr. Sellar, President, in the Chair.

The following papers were read :—

1. "On a supposed new species of *Eleocharis*," by Charles C. Babington, M.A. This paper will be found in the present Number of the 'Annals.'

2. "Analysis of the Fluid (known as Gram Oil) from the leaves of Gram (*Cicer arietinum*)," by Thomas Anderson, Esq. This paper consisted of an analysis made by Mr. Russell Aldridge :—"On evaporation it yielded a black residue which would not dissolve in cold water, but did so readily when heated; and on cooling it became turbid, showing the presence of oxidizable extractive. To a small portion of the fluid chloride of calcium was added, and a precipitate of oxalate of lime obtained, showing the presence of oxalic acid; it was then filtered, and to a portion of the filtrate potash was added, no precipitate was obtained, therefore no tartaric acid. To the remainder of the filtrate ammonia was added, which gave no precipitate when cold; but upon boiling it a slight one was obtained, showing a trace of citric acid. The remainder of the original solution was evaporated down, and the residue taken up with alcohol, a small quantity of gummy matter separated; on evaporating the alcoholic fluid, it left some sugar; the residue was then placed in a platinum capsule and subjected to red heat, the ashes (which were of a brown colour) were then taken up with water, and a few drops of hydrochloric acid added, which gave to the fluid a yellow colour, showing the presence of oxide of iron. It was then filtered, and carbonate of ammonia added, which gave a distinct trace of lime, again filtered, and to the filtrate phosphate of soda added, which gave a trace of magnesia. Potash and soda were present in minute quantities.

"The results thus are :—

"Oxalic acid (copious), citric acid (traces), oxidizable extractive, gum, sugar, lime, magnesia, iron, potash and soda."

3. "Notice relative to the Transmission of Foreign Seeds in Soil,"

by Mr. M'Nab. The author stated that he had been long in the belief that the transmission of fruits and seeds in a fit state for germination would be better accomplished by being packed in soil than by any other known method. This experiment was fully tested by himself during 1834, when he brought over the seeds of many of the rarer American oaks and other trees in boxes filled with soil, while portions of the same kinds of seeds packed, both in brown paper and cloth bags, were in many instances totally useless.

4. "On a variety of the *Orchis mascula* (*O. speciosa*, Host), found in the county of Wicklow," by Mr. D. Moore of Glasnevin. This communication consisted of parts of two letters from Mr. Moore addressed to Mr. N'Nab:—

"27th May 1852.—I have just been looking over a proof figure of *Orchis speciosa*, Host. It was discovered by me and another person last year in the county of Wicklow, where I went again a few days ago and found two more plants. Koch makes it a variety of *O. mascula*, which it probably ought not to be kept separate from; the difference being more in appearance than in well-defined characters. It is however a noble-looking plant, growing nearly 18 inches high."

"28th May 1852.—I herewith send you one of the smallest specimens of the *Orchis speciosa*, Host, which I will thank you to show to Dr. Balfour. Some of the flowers in the rachis are imperfect, wanting the labellum. The specimen figured had also imperfect flowers, which would appear to be characteristic of the species. I confess I cannot find good characters to distinguish it from *O. mascula*, though it differs so widely in general appearance."

In regard to the *Orchis*, Dr. Balfour read the following communication from Mr. Babington:—

"I see that Mr. Moore has sent you a paper upon the supposed *Orchis speciosa* of the county of Wicklow, and that it is to be brought before the Botanical Society on Thursday next. He has been so good as to send me a specimen of the plant, and I have informed him very recently that I could not concur in the opinion that it is the *O. speciosa* of Host. I believe it to be nothing more than a very luxuriant state of the *O. mascula*. A few days since I found two specimens, exactly corresponding with the Wicklow plant, in the wooded part of the Devil's Ditch, in this county of Cambridge. They possess the remarkable size of Mr. Moore's plant, and the rather acuter segments of the perianth, such as he finds on his specimens. The true *O. speciosa* (which is itself only a variety of the *O. mascula*) has very much more attenuated segments of perianth. It is figured by Reichenbach in his recent elaborate volume upon the Orchidaceæ (forming 'Icon. Fl. Germ.' vols. xiii. & xiv.), and I have lately received a plant which is much more like it than is the Irish plant, from Mr. Keys of Plymouth. Our English *O. mascula* is noted by continental botanists as an obtuse-petaled form of the species. Mr. Moore's plant is far nearer to the continental type of the species.

5. "On Plants observed in Westmoreland and Cumberland in May 1852," by Mr. James B. Davies.